

# Judge Sirica Chills Genetic Research

By BERNARD D. DAVIS

Federal Judge John J. Sirica sent a chilling signal to the scientific community his spring. By granting an injunction delaying the first proposed outdoors experiment using organisms produced by genetic engineering, he created a precedent for future judicial interference in this embryonic science.

Judge Sirica's decision was rendered in a suit filed by Jeremy Rifkin, a professional crusader against genetic engineering, who sought a legal injunction to prevent testing of a new strain of genetically engineered bacteria that increased the chances of crops surviving a frost. University of California investigators had found that certain bacteria promote frost damage to plants by initiating the formation of ice crystals. Using recombinant DNA techniques they were able to remove the bacterial gene responsible for this property, and application of this altered strain in greenhouse experiments protected crops from frost damage by temporarily displacing much of their normal surface bacteria with this altered strain. The National Institutes of Health, which regulates recombinant DNA experiments, then approved a small-scale field test that became the target of Mr. Rifkin's efforts.

Judge Sirica, emphasizing that he did not judge the scientific arguments, granted the injunction on narrow legal grounds: The NIH should have issued an environmental impact statement before giving approval. But to some extent he was also evaluating the scientific issues. For the law requires an impact statement only for actions significantly affecting the quality of the human environment, and the judge found "several areas of plausible environmental concern." In fact, it would be hard to find a less plausible case.

First and most important, mutants that no longer promote ice formation are not new to the environment. They occur naturally, but are rare because they cannot survive as well as the parental strain. If an environmental niche does exist for such mutants they have long since found it, in the eons during which they have continued to arise. Moreover, similar mutants, isolated in the laboratory, have already been tested in the field without causing harm. It was to produce a better defined and more stable mutation that the current experiment uses recombinant DNA. Because of this small technical modification, the whole experiment required approval of the NIH's Recombinant DNA Advisory Committee.

There is thus no reasonable scientific basis for the claim in the brief that the altered bacteria might spread. There is even less basis for the fanciful predictions

of dire consequences if they should spread—for example, interference with cloud formation or harm to those plants that are naturally frost-resistant. It is not surprising that the NIH committee, containing outstanding scientists, found no significant danger in the experiment.

It is also argued that the release of modified bacteria might create pests, such as starlings or the gypsy moth, when transplanted to a new locality. However, this analogy is irrelevant. Such explosions have occurred only where a species was transferred to a new continent, where it no longer encountered the animals and plants that held it in check in its native habitat. But a bacterium that is modified genetically will not encounter such an ecological vacuum when released to its original environment, as in the ice experiment. Moreover, unlike higher organisms, bacteria can be distributed through the air and identical species are found on all continents.

What is most disturbing to scientists in this suit is not the demand for an environmental impact statement; it is the way a determined individual, without scientific credentials, can use our legal system to block thoroughly safe, carefully planned and legally approved experiments. Also disturbing is the nature of the movement that has benefited from this legal support. For while the suit emphasizes only the need for prudence in the release of modified bacteria, Mr. Rifkin's books have a larger aim; presenting a mystical personal philosophy and apocalyptic visions, he preaches that we should not tamper with living nature. One wonders if he would have approved of the agricultural revolution 10,000 years ago that made civilization possible.

At the beginning of work with recombinant DNA, in the mid-1970s, many scientists urged caution. But we are well past that beginning, and virtually all scientists are convinced that the originally imagined dangers are just that. Moreover, that debate asked the wrong question: Can scientists prove absolutely that various catastrophic scenarios could not occur? Eventually the search for this mirage was abandoned, and it was recognized that questions of risks and benefits from new scientific developments cannot be dealt with in terms of absolute certainty; they require judgment, informed by the relevant scientific principle, and best applied on a case-by-case basis.

Accordingly, the NIH guidelines for recombinant DNA research were progressively relaxed. The results have been spectacular; recombinants have not caused one day of illness, while they have given us such benefits as human insulin, a vaccine

against hepatitis and prospects for remarkably improved control of cancer and hereditary diseases. It would be sad if such specious arguments as we have seen in this case should lead to a revival of issues that have already been laid to rest.

Unfortunately, Judge Sirica, sympathetic to the demand for uniform general standards in this field, has judged the action of the NIH by criteria that are much more appropriate for the legal process than for a fast-moving field of science. He has thereby been led to respond favorably to a frivolous and even mischievous case. The resulting precedent not only harms agricultural research, even more it makes any responsible scientific activity hostage to legal interference by zealots. While one must respect the judge's humility in the face of complex scientific issues, it is artificial to separate these from the legal discussion. Can't our legal system find a better way to handle complex scientific problems?

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## THE WALL STREET JOURNAL

Published since 1889 by

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